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HOG CHOLERA AND ITS PREVENTION

BY

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FOREWORD.

This bulletin is based on five years of experimentation with Hog Cholera and the use of Hog Cholera Serum. The details of the experiments have been purposely omitted on account of the demand for a concise, practical discussion of this subject. We expect to publish the detailed experiments in a technical bulletin.

THE AUTHOR.

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LIST OF ILLUSTRATIONS.

SYNOPSIS.

I. Symptoms.

Ante-mortem:

Fever, rapid loss of flesh, diarrhoea, discoloration of skin, wobbling gait.

Post-mortem:

Ulceration of the bowels, turkey's egg kidney, hemorrhagic lymph glands.

II. Susceptibility.

Twenty-five to ninety-five per cent.

III. Mortality.

Ninety-eight per cent.

IV. Dissemination.

(1) Persons or animals walking through infected lots.
(2) Vehicles driven through infected plats.
(3) Infected streams.
(4) Infected railroad cars.
(5) Buzzards and other birds.
(6) Garbage.
(7) Infected feedstuffs.

V. Use of Serum for Prevention.

(1) Only known preventive.
(2) It should be properly prepared.
(3) Directions for use should be closely followed.
(4) Use of serum gives immunity for about six weeks.

VI. Prevention of Spread of the Disease.

(1) Quarantine premises.
(2) Isolate or destroy sick animals.
(3) Burn carcasses.
(4) Treat well hogs with serum.

HOG CHOLERA AND ITS PREVENTION

By R. P. Marsteller, Associate Professor of Veterinary Science, A. and M. College of Texas.

Hog cholera is a highly contagious, infectious disease of hogs. It is characterized by high fever, ranging from 105 to 107 degrees Fahrenheit; loss of appetite, cough, diarrhoea, rapid loss of flesh, red or purple spots on the belly and a purulent discharge from the nose and eyes. This discharge often pastes the lids of the eyes together and causes the hog to breathe with a snuffling sound. Late in the attack and just before death the affected animal has muscular tremors and a wobbling gait. (Fig. 1.)

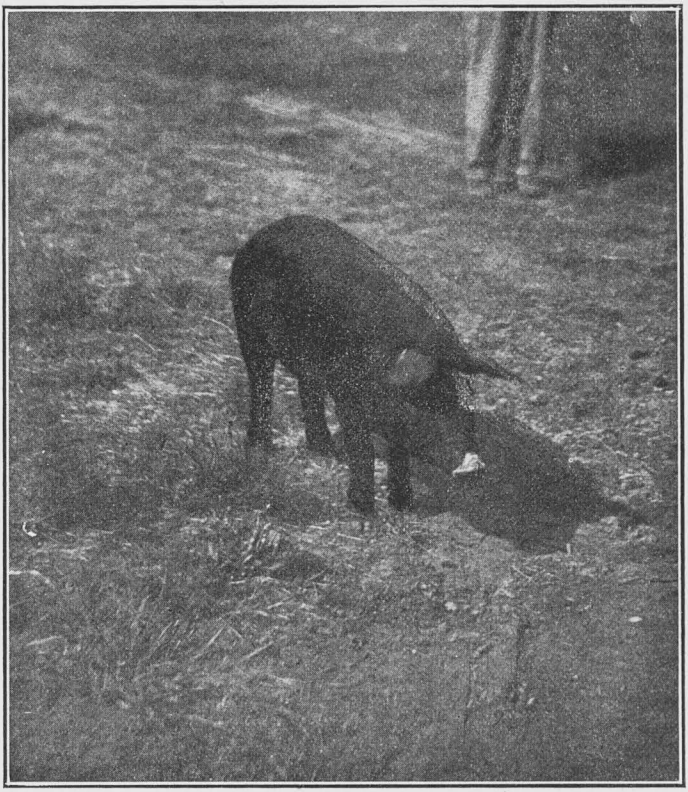


Figure I.—Hog sick with cholera. Note gaunt appearance. This hog's temperature was 107° F. when this picture was made.

On post mortem examination the lymph glands, or kernels as they are sometimes called, are found to be inflamed, swollen and bloody. The lining of the chest (pleura) and the lining of the abdomen (peritoneum) are often covered with small red blood spots. In other instances these membranes are inflamed, and the lungs and intestines are more or less

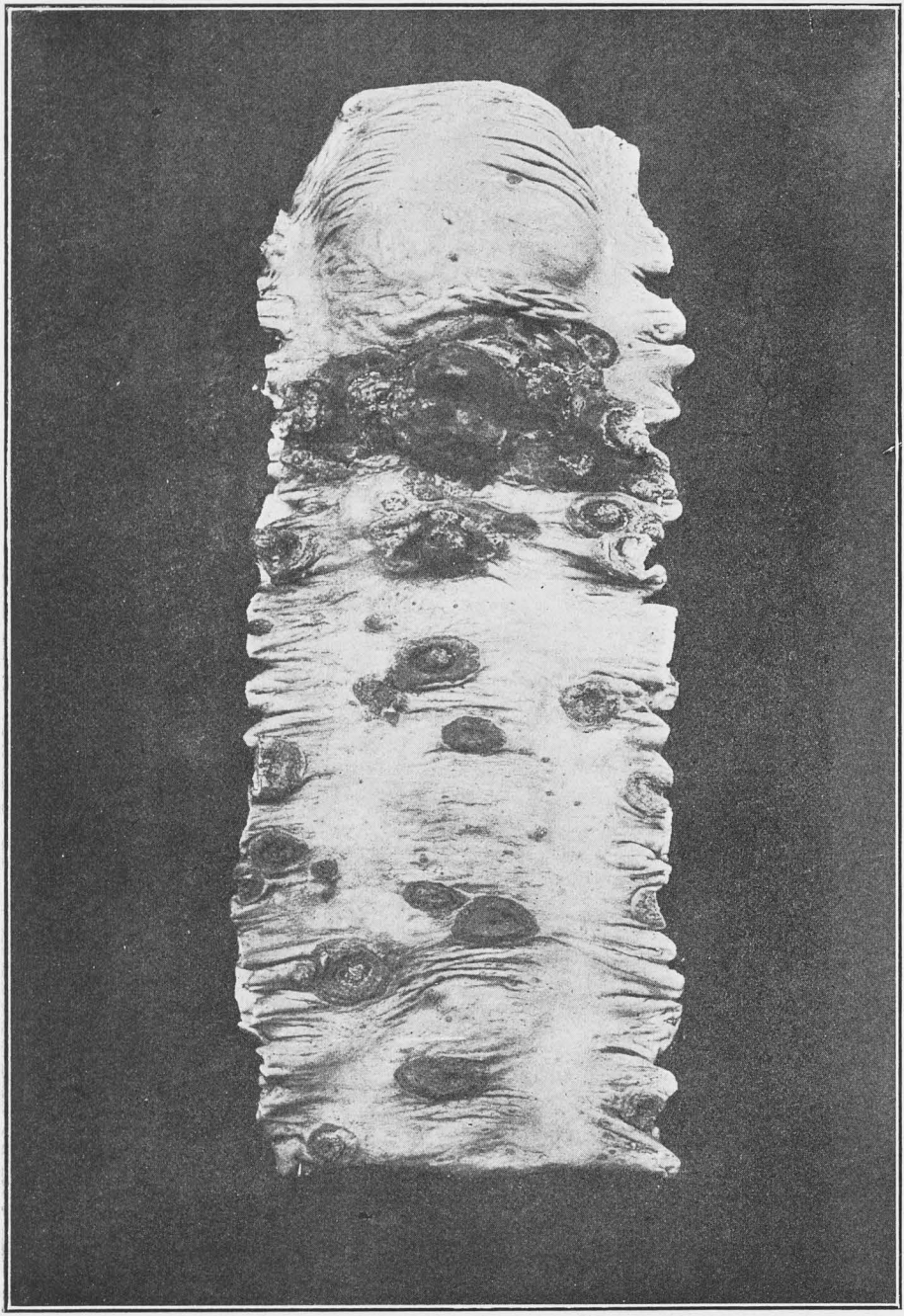


Figure III.—Intestine from a hog affected with cholera, showing ulceration of the mucous membrane.

adhered to them. The lungs are sometimes inflamed, showing certain areas which appear solid and dark, like a piece of liver. The lining of the intestines (mucous membrane) is sometimes inflamed and ulcers are found on it. (Fig. 3.) This is considered one of the most positive symptoms and is seen more often in cases where the animals have lived for a week or more after the attack of the disease. The kidneys are generally inflamed and their surfaces are covered with small blood spots, making them look speckled, like a turkey's egg. This, also, is considered one of the most positive symptoms. (Fig. 2.)

The length of time that it takes the disease to develop after the hog has been exposed varies. Ordinarily, it takes about seven to fifteen days. The length of time that the hogs remain sick also varies; but they usually die within a week or ten days after they develop symptoms. In other instances they die in a day or two after they become sick, but some cases of what is called chronic cholera live for several weeks.

In an outbreak of hog cholera in a herd, 25 to 95 per cent. of the herd will contract the disease and of those that become sick nearly all die. The few that survive are generally stunted and do not thrive. Young hogs are more susceptible and succumb more quickly. Very fat ones or those in poor, weak condition, do not stand the disease as well as those in ordinary flesh. Pigs under four weeks of age seldom become sick from cholera.

Hog cholera is generally spread by hogs affected with the disease. Affected hogs may be introduced into a herd before they show symptoms of the disease, or they may have it in the chronic form. The disease may be carried to a healthy herd by owners, employees, veterinarians, visitors and others who have walked through the infected lots. Horses, mules and cattle may carry the infection on their hoofs. Dogs and cats, skunks, opossums, and other wild animals, as well as buzzards, blackbirds, sparrows and other birds that are seen about barnyards may carry the disease; but our experience leads us to believe that the small birds are not common carriers. Streams of water running through infected premises also spread the infection. Railroads disseminate the disease, as it is a common practice to send hogs to market when they become sick, and in most instances they are affected with cholera. En route the excreta of these animals is thrown from the car in various ways and is liable to infect premises adjacent to the right-of-way. Railway cars are often not properly disinfected after being used for hogs with cholera, and the next shipment of hogs in such cars become infected. All stock yards are more or less infected, and hogs that pass through them are liable to contract the disease. Vehicles, automobiles, and buggies driven through yards where the soil is contaminated may also carry the infection. Even feed is a possible source of infection. It not infrequently happens that a farmer hauls corn and other feed stuffs to market in a wagon that has been used to haul hogs affected with cholera. It is also possible for feed to be contaminated in other ways. The feeding of slop from hotels and restaurants, which often contains uncooked scraps from diseased carcasses, usually results in introducing cholera and acute digestive disorders. Hogs kept about slaughter houses contract the disease by eating offal from hogs infected with the disease.

Many outbreaks of hog cholera could be prevented by proper precau-

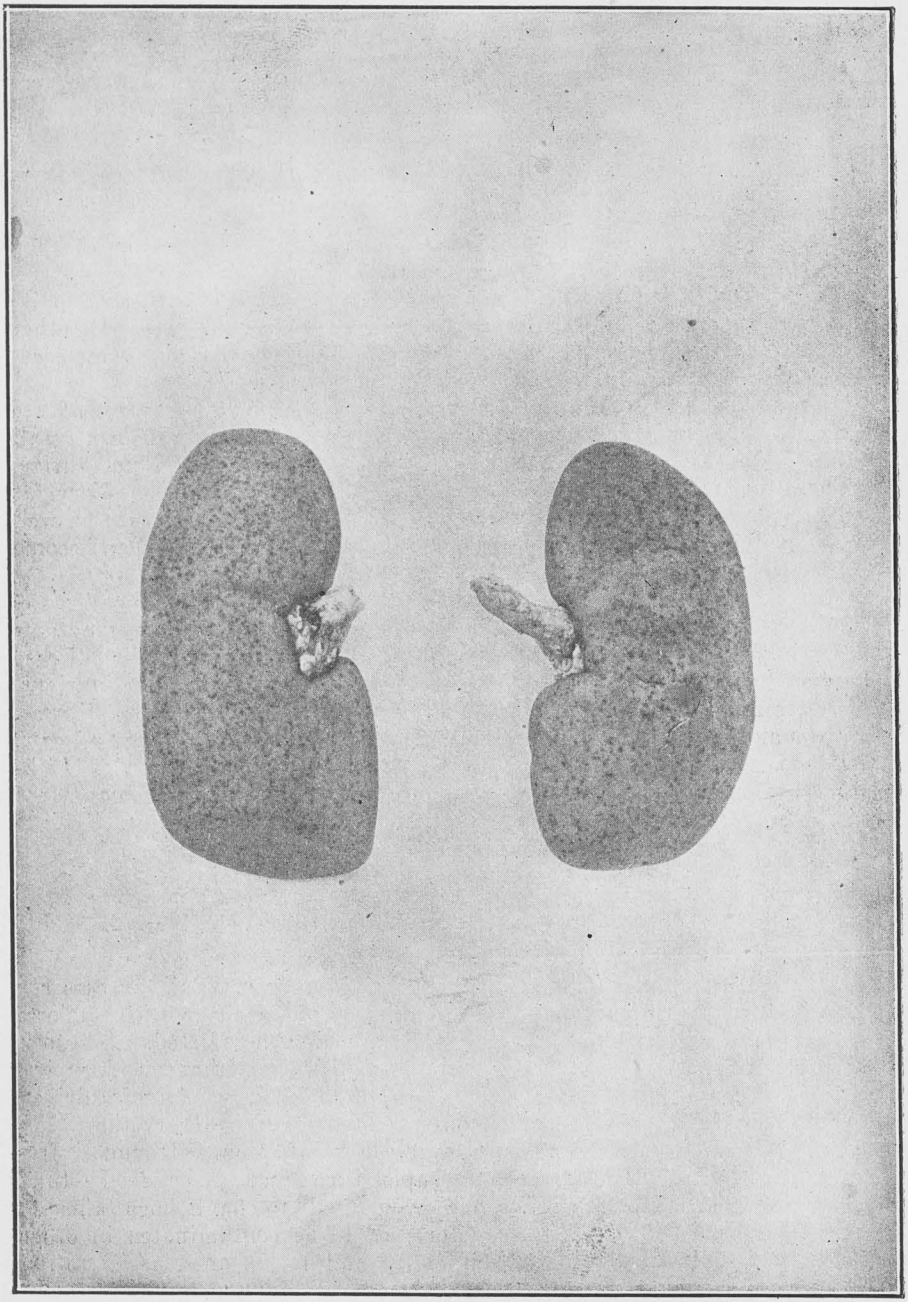


Figure II.—Kidneys from hog affected with cholera, showing typical turkey egg appearance.

tions. The owners should not visit outbreaks of cholera and should instruct all employees, visitors and others to avoid walking through his pens when cholera occurs in the neighborhood. Hogs should be kept from streams when cholera occurs above them on the same stream. All slop or offal fed to hogs should be thoroughly cooked.

Whenever cholera occurs in the neighborhood, and quarantine regulations can not be strictly maintained, the hogs should be treated with serum. Hogs sent away to fairs or to be bred should also be treated with Hog Cholera Serum.

Use of Hog Cholera Serum.

Hog Cholera Serum is the only known agent that will prevent cholera. It will not cure the sick ones, but it will protect the well ones. When Hog Cholera Serum is used the following suggestions should be closely observed:

(1) The serum should be purchased from a reliable concern. Serum produced by the Dorset-Niles-McBride method is the only kind recognized as standard.

(2) It is highly desirable to have an experienced person administer the serum, preferably a graduate veterinarian.

(3) The following precautions should be taken in administering the serum: The hogs should be collected in a clean lot for a day or at least several hours before treatment. In hot weather the lot should be provided with shade and drinking water. The hogs should be fed sparingly while in the lot. Adjacent to this lot there should be a small pen, about six by eight feet, for catching the hogs. After treatment they should be turned into another clean lot or pasture. By "clean" we mean a lot or pasture free from mud holes, containing stagnant or manure stained water.

(4) The following instruments and utensils should be provided:

One or two hypodermic syringes.
One pound or more of Lysol or tincture of iodine.
One or more jelly jars, with lids.
Several sponges.
One or two pans.
One or two buckets.
Clean towels.
Two small ropes, six to ten feet long.

(5) The person administering the serum should not handle the hogs or assist in catching them. Before beginning the treatment he should wash his hands in some antiseptic solution, and the washing should be repeated as often as necessary to keep his hands perfectly clean. A three per cent. solution of Lysol is good. The instrument and the vessel into which the serum is poured to fill the syringe should be boiled for ten minutes before using. Some one should be especially appointed to wash the place on the hog where the serum is to be administered. A three per cent solution of Lysol is also satisfactory for this purpose. Some do not recommend washing the place of injection, but simply mopping it with tincture of iodine. If the hogs are washed a fresh solution of antiseptic should be made frequently.

(6) The serum may be given by injecting it under the skin or into

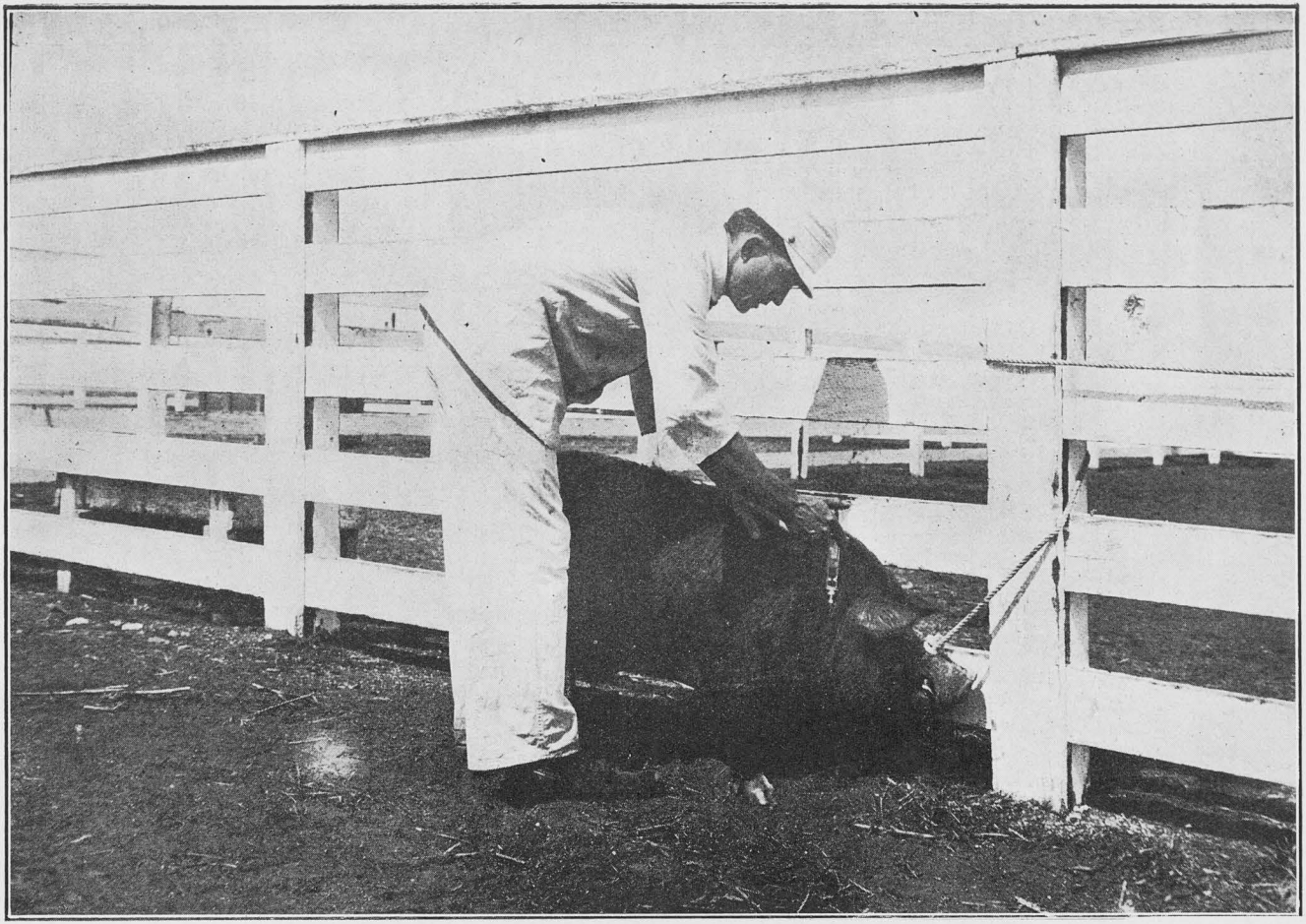


Figure IV.—A very good method of administering the serum to large hogs.

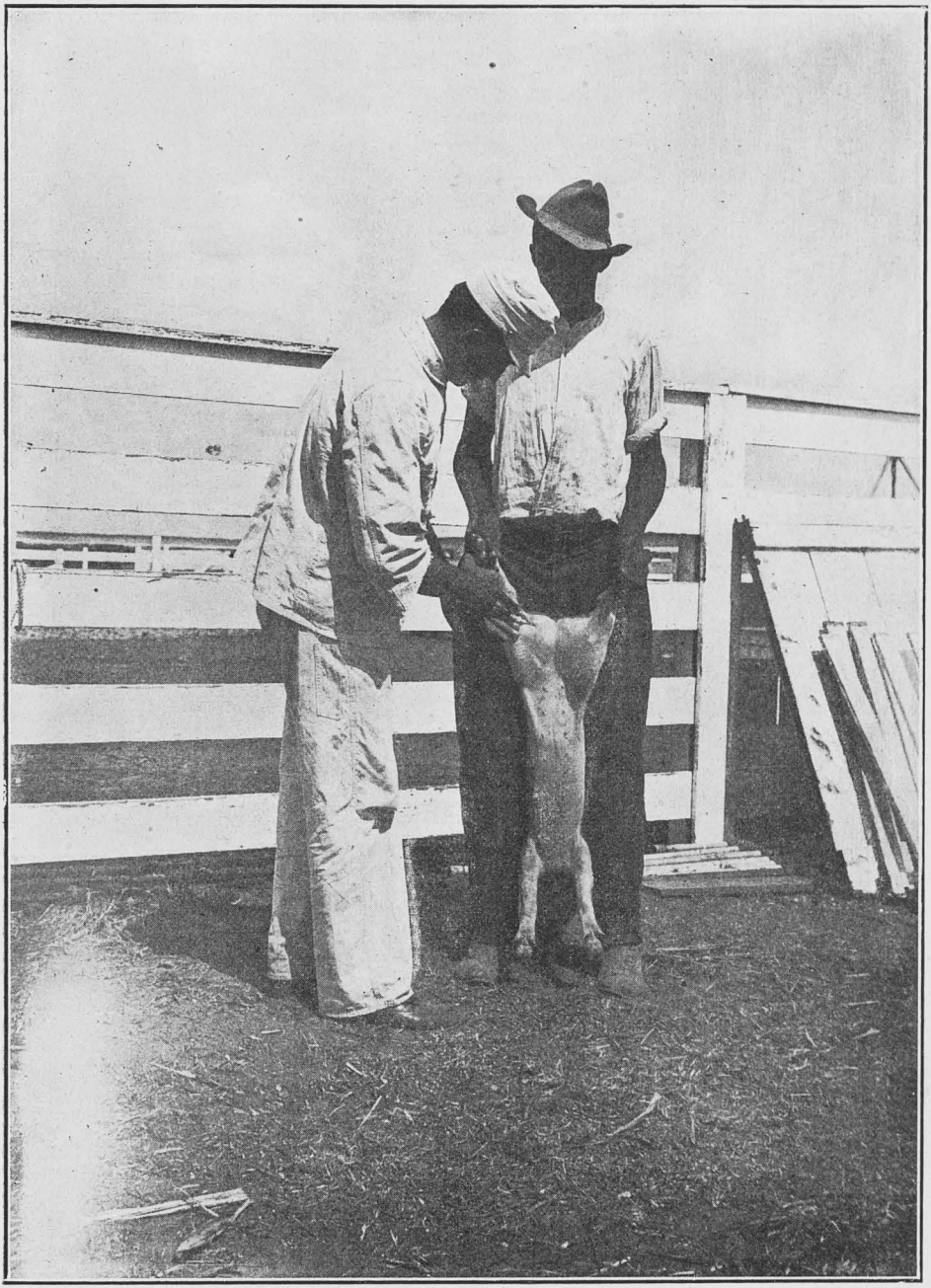


Figure V.—A method of administering serum; generally used on small hogs.

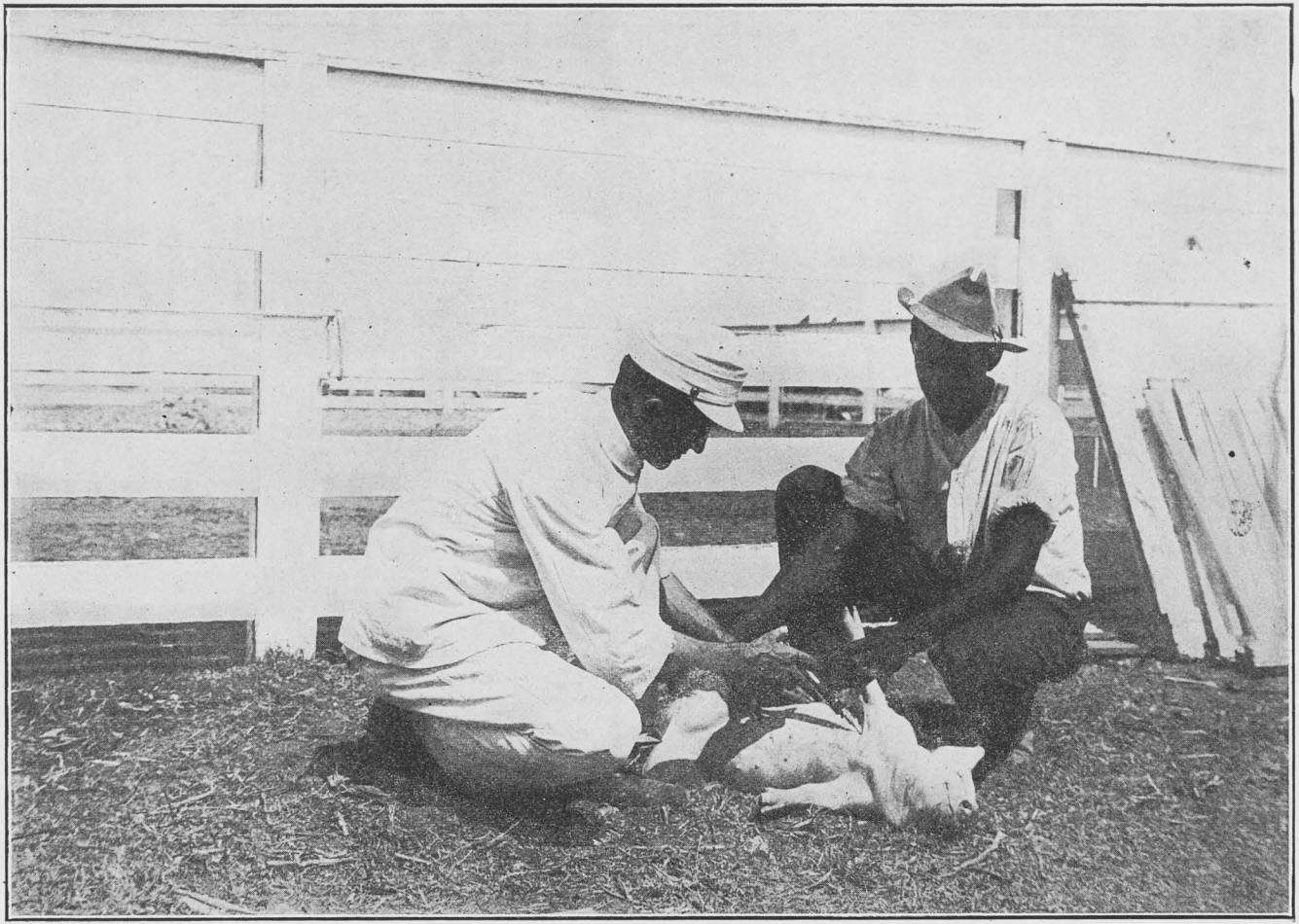


Figure VI.—A method of administering serum which may be used for large or small hogs.

the muscles on the inside of the thigh or ham, or in between the fore leg and body, or at the base of the ear. (See illustrations, Figs. 4, 5, 6.). It is well for the operator to remain outside of the catching pen; at least the serum and instruments should be kept outside. When everything is ready to treat the hogs the operator should mix the serum in the bottle by inverting it several times, but the bottle should not be shaken. He should then pour some of the serum into a small container —a glass jar provided with a lid is very satisfactory. The syringe is then filled and the contents injected into the hog. The style of syringe commonly used is shown in the illustration. If the hog weighs more than 100 pounds it will be necessary to refill the syringe. If the hog weighs more than 300 pounds, the serum should be given in two places. For example, in both the right and left hams. It requires two or more men to handle and hold the hogs while they are being treated. By having pens properly arranged and plenty of help twenty to forty hogs an hour may be treated. If proper care is taken, abscesses will not develop. The hogs should be observed for several weeks after treatment, and if any of them remain sick, a second treatment should be given.

Dose of Serum.

The average dose of serum is given on every bottle. It is well to give a full dose, especially if the disease already exists in the herd. The following is a fac-simile of the label on a bottle of Hog Cholera Serum produced by the Agricultural and Mechanical College of Texas:

HOG CHOLERA SERUM.

Prepared by the Veterinary Department of the Agricultural and Mechanical College of Texas, College Station, Texas.

Hog Cholera Serum is a preventive for Hog Cholera. It is not a cure. It is Perishable and should be used immediately. If for any reason, it becomes necessary to store it, keep it in a cool, dark place, preferably on ice.

Every reasonable precaution is taken in preparing this serum, but it is not guaranteed in any way.

Hog Cholera Serum should be given by injecting it into the muscles at the base of the ear or between the shoulder and body, with a hypodermic syringe. The syringe should be carefully cleaned before and after using, and the place where the serum is injected should be washed and disinfected with a three per cent. solution of Lysol, Creolin, Kreso or carbolic acid to prevent abscesses. We supply a very satisfactory syringe at $4.50 each.

The dose is graduated to the size of the hog, giving twenty (20) cubic centimeters to the hundred pounds live weight, e. g.

Sucking pigs to 50 pounds - - - dose 10 cc.
50 pounds to 100 pounds - - - dose 20 cc.
100 pounds to 150 pounds - - - dose 30 cc.
150 pounds to 200 pounds - - - dose 40 cc.
200 pounds to 250 pounds - - - dose 50 cc.

The serum costs one and one-fourth cents per cubic centimeter—25c per dose for 100 pound hogs.

When ordering serum, be sure to state number and weight of hogs, in order that the proper amount may be sent, as unused serum cannot be returned for credit or exchange. Cash must accompany the order, or the serum will be sent C. O. D. Address all correspondence, and make all checks, money orders, etc., payable to "The Veterinary Department."

(Read Hog Cholera pamphlet carefully before ordering or administering serum.)

The use of Hog Cholera Serum alone gives immunity for about six weeks only. There is another method in which hogs are given a small

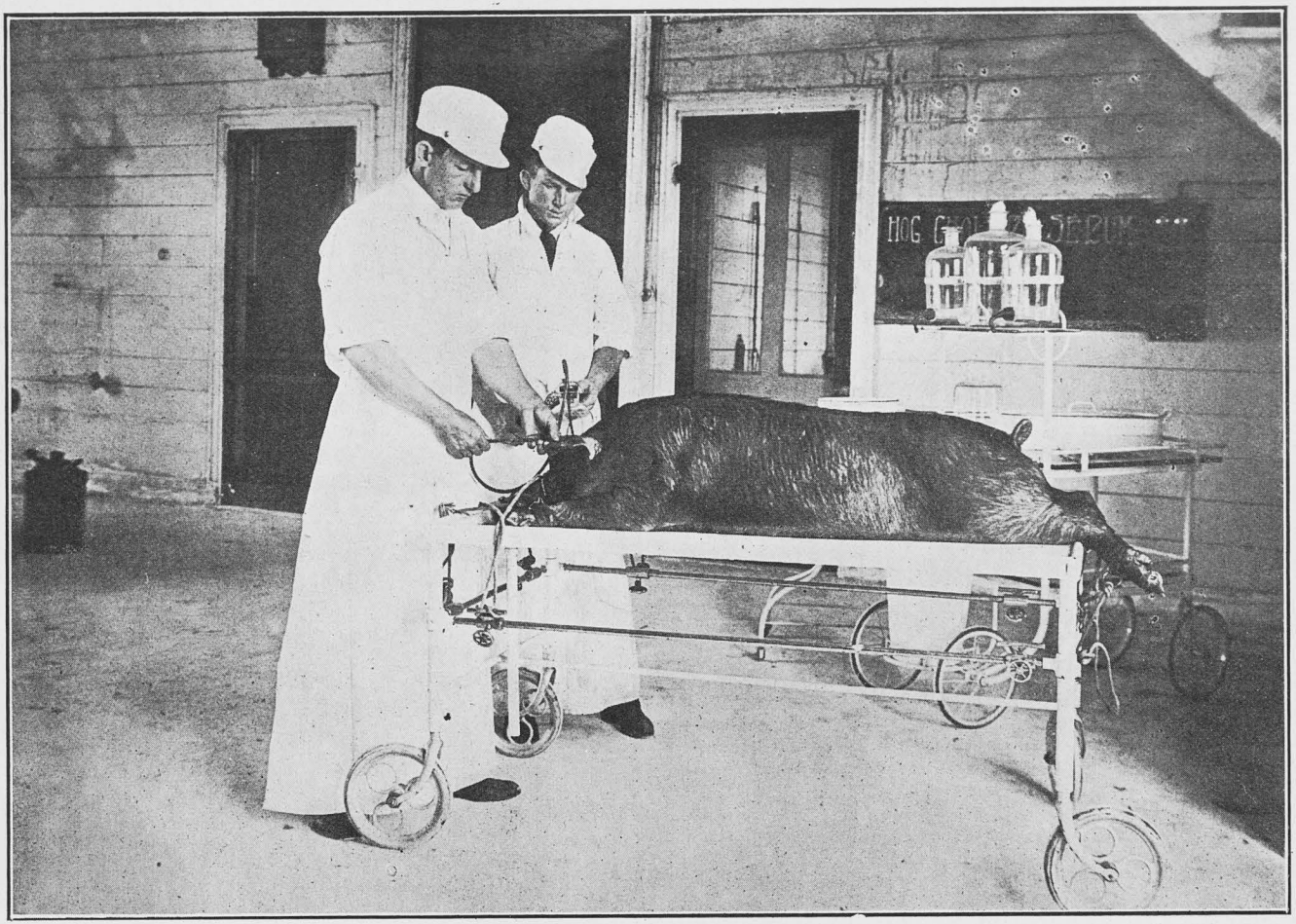
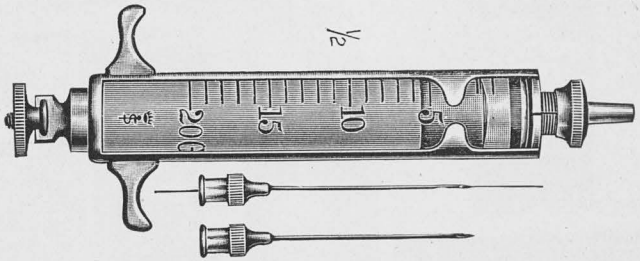
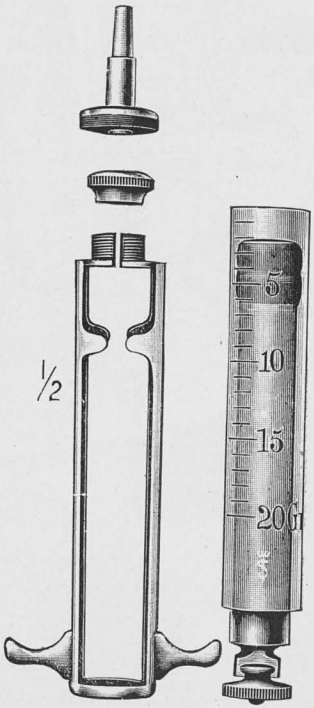


Figure VII.—Treating a hog for serum production.

dose of virulent blood from a hog sick with cholera in connection with the serum. This method gives immunity for several months, probably a lifetime. We do not advise the use of this method except by one who has had careful training and considerable experience with hog cholera; for, unless it is carefully used, there seems to be a possibility of introducing cholera into a herd. We only supply virulent blood to those who are thought to be qualified to use it.



No. 1.—A very satisfactory syringe for administering.



No. 2.—This syringe can be taken apart to clean and to replace broken parts.

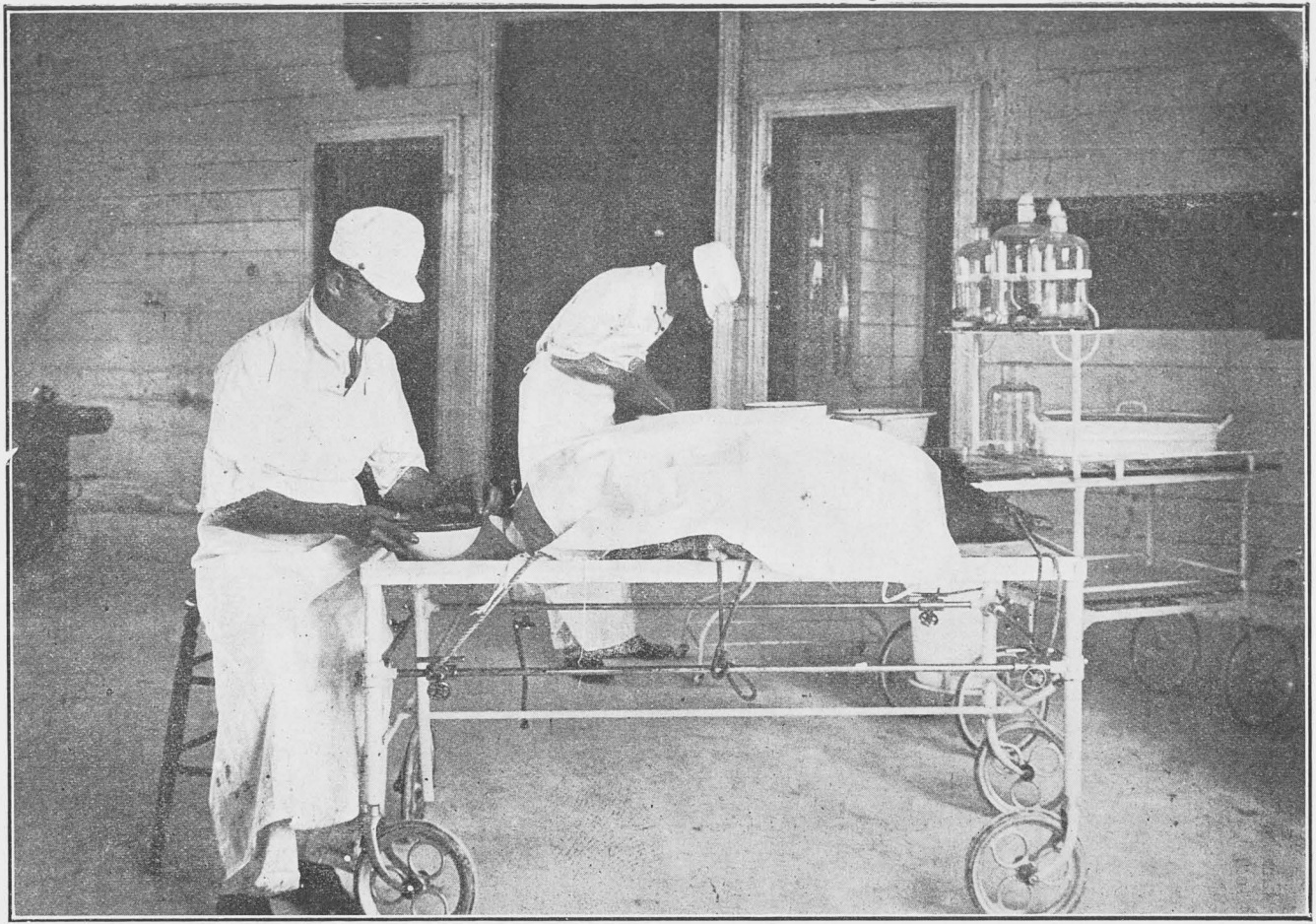


Figure VIII—Bleeding a hog for serum production.

Control and Eradication of an Outbreak of Hog Cholera.

While it is evident that Hog Cholera can be spread in many ways, yet *diseased hogs* and *their excrement* are the only sources of the disease. The surest way to prevent its spread is to carefully isolate, or, better, destroy all animals showing symptoms of the disease, and immediately burn or bury their carcasses deep. All hogs showing no symptoms of the disease should be treated with the serum. If the sick animals are isolated, they should be placed in a small, well fenced lot to prevent trespassing by small and wild animals. The lot should not drain into any stream. A small ditch should be dug around the lot and quicklime placed in its every two or three days. No feed should remain in the lot to attract birds, and all animals that die should be immediately burned or buried. The lot should be sprinkled daily with a five per cent solution of carbolic acid, and a notice should be posted that visitors and other individuals should keep out. After the sick hogs have been isolated or destroyed and the ones that are apparently well are treated with serum, the lots, pens and houses should be thoroughly disinfected. The houses should be sprayed with some reliable antiseptic, such as a five per cent solution of carbolic acid or whitewashed. All refuse, such as manure, corn cobs and old feeding platforms, should be burned. The mud holes should be filled with fresh dirt from the field and the entire surface sprinkled with quicklime. All attendants should be careful to change or disinfect their boots or shoes before leaving the premises. Large animals, such as mules, horses or oxen, should have their hoofs disinfected after passing through the lot and afterward leaving the premises. Wagons passing through the lot should have the wheels disinfected, and wagon beds of wagons which have been used to haul carcasses should be disinfected. It should be kept in mind that hog cholera is a highly contagious disease, and any individual, animal or vehicle coming into contact with diseased animals, their excrement, or the soil of the infected lots should be disinfected. Even when the above measures are taken it is unsafe to place hogs in such lots for several months unless they have been treated with Hog Cholera Serum.